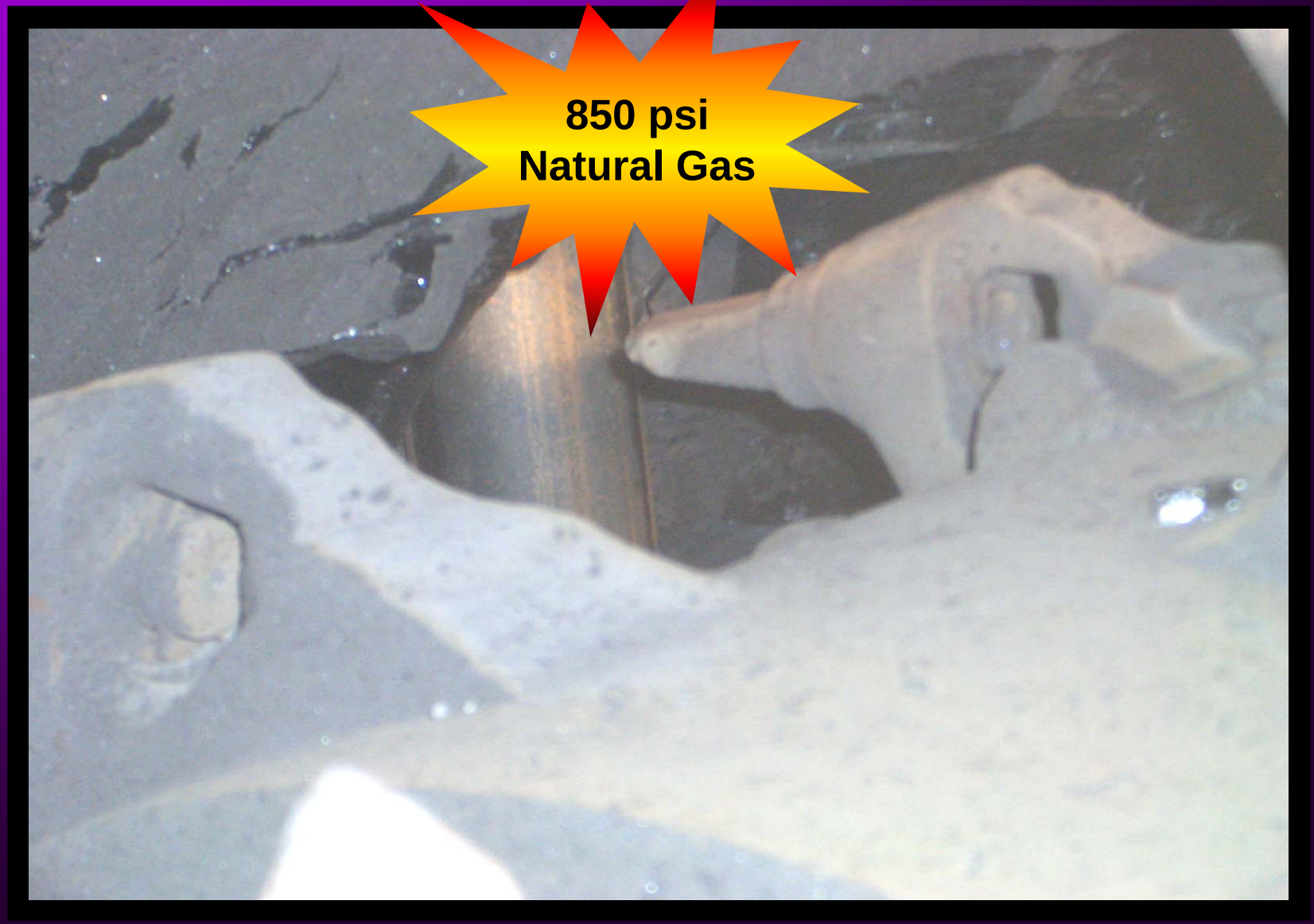
MSHA and Coal Mine Methane

Oil and Gas Well Hazards

- Inundation
  - Gas
  - Oil
  - Water
- Ignition sources
  - Mine into casing
  - Drill into active mine
  - Drill into sealed area of active mine
- 30 CFR 75.1700 – 300 ft. diameter barrier

Inches From Disaster



Coalbed Methane Extraction

Coalbed Methane (CBM)

- Methane produced from coal seams and surrounding strata
- CBM production reduces methane emissions during mining
- Several types of CBM wells
- Abandonment issues
  - Plugging
  - Location

CBM Benefits

- In-mine methane emissions reduced
  - 40 to 90% of in-seam methane removed
  - Higher production rates
  - Reduced loads on bleeders
  - Reduced incidence of face ignitions
- Supply of commercial gas
- Greenhouse gas emissions reduced

PIB 05-10 *Coalbed Methane Wells* (*May 10, 2005*)

- **CBM wells are functionally equivalent to methane degas holes**
- **MSHA will regulate CBM wells near active mines under ventilation plan and map requirements for degasification holes**
- **District manager approval is necessary before mining near or through CBM wells or installing a methane drainage system in an active mine**

PIB 08-20 *Surface Drilled Coalbed Methane Wells with Horizontal Branches in the Coal Seam (August 27, 2008)*

- **Recent methane inundation when intersected by mine**
- **Must maintain 300 ft. barrier as specified in 30 CFR 75.1700**
- **Petition for modification to mine through**


Mining Into
Pressurized
Holes

Methane Flaring

Flaring

- API flares have a long history of safe operation
- Flash-back hazard similar to internal combustion engines used to power methane blowers
- MSHA has no policy on flaring
  - Flaring methane could be approved in the mine ventilation plan with adequate protection for miners

Ventilation
Air
Methane
Oxidization

VAM

- Oxidation of ventilation air methane
  - Less than 2% methane
- MSHA considers VAM under pt. 75
  - Return air stream
  - Permissible electrical components
- VAM units approved in mine ventilation plan
  - Must protect miners from high temperature combustion

VAM Protection

- Flame propagation speed
  - Air velocity greater than flame propagation speed
  - If ventilation fails, speed protection is lost
- Methane sensor, diverter valves
  - Reaction times
  - Line of demarcation